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A preliminary checklist of spider fauna (Family- Araneidae) of Sulaipat village in the Odisha state of India

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ABSTRACT

Preliminary research of the spider diversity in Sulaipat village in the Mayurbhanj district of Odisha was conducted during September 2020 and December 2020. Based on the opportunistic observation, 52 spider species were recorded in total. Salticidae and Araneidae were the most prominent families found. All the spider species were identified to a family and generic level, with a few of them being identified to an individual level. Spiders that were unable to be recognized were not included in the list. However, the study result provides a preliminary data for spiders in Sulaipat village and its environs, indicating a diverse variety of spider species in this research region that may be further investigated.

Keywords: Sulaipat, Salticidae, Araneidae, Opportunistic observation

1. INTRODUCTION

Spiders (Arachnidae: Araneae) which are predatory and prey on a variety of insects and small vertebrates play a vital ecological role in ecosystem functioning. Spiders are also thought to be indicators of ecosystem health (Mathew et al., 2009). They are one of nature's most significant biological agents for controlling insect populations. Integrated Pest Management (IPM) methods incorporate spiders as significant bio-control agents, despite the lack of a complete account of spiders in India (Kananbala *et al.* 2018). There are 49,671 species of spiders in the world, divided into 4,229 genera and 129 families (WSC, 2021). In India, around 1,877 species belonging to 479 genera and 60 different families are recorded (Caleb & Sankaran, 2021). Spiders have gotten very little research attention despite being one of the most common and diverse families of invertebrates. They have mainly been ignored due to the human inclination to prefer some organisms over others of equal importance simply because they lack universal appeal (Humphries, 1995). Odisha's spider fauna, like that of other regions of India, is little explored, with scattered reports of this group from various parts of the state. Only a few attempts have been undertaken to research the spider fauna of Odisha so far. (Mallick, 2017; De and Palita, 2018; Caleb, 2019; Choudhury et al., 2019 & Choudhury et al., 2021). For long-term biodiversity management and conservation, regular

monitoring of species population trends and appropriate biodiversity documentation are essential. Checklists are an important part of any comprehensive documentation. The current study was undertaken in and around Sulaipat, in the Mayurbhanj district of Odisha, near the Similipal Tiger Reserve. The goal of this study is to generate a preliminary list of Sulaipat spider fauna.

Study area

Sulaipat is a small rural area in the Rairangpur tehsil of the Mayurbhanj district of Odisha, India (Latitude 22° 4' 2.0856" N and Longitude 86° 7' 21.1008" E). The current research was carried out in and around Sulaipat (Figure 1). This is a tourist attraction because of the vicinity to the Khadakai and Bankabal Reservoirs and the Similipal Tiger Reserve. The region has a subtropical climate with scorching summers and heavy humidity, a defined rainy season (June to October), and a moderate winter (November to February). The average annual rainfall of this area is around 1500 mm. About 70% of the rainfall is obtained between June and September during the southwest monsoon. Generally, heavy rainfall is observed in August. In the winter, the minimum temperature drops up to 4.5°C whereas in the summer it is quite high at 29.5°C. The average temperature approaches 45°C during peak summer. It is a rural area with human settlements and mixed vegetation mainly comprising deciduous species, ornamental shrubs, herbs, grasses, paddy fields, vegetables and flower gardens, and areas predominated by tree species such as Sal (*Shorea robusta*), Imli (*Tamarindus indica*), Kusum (*Schleichera oleosa*), Kendu (*Diospyros melanoxylon*), Asan (*Terminalia alata*), Palasha (*Butea monosperma*) and Simli (*Bombax ceiba*).



Figure 1 Study area

2. METHODS

During September and December of 2020, a preliminary spider survey was conducted in and around Sulaipat village. Spiders were sought visually in their microhabitats, which included the tree trunk, ground, litter, shrubs, flowers, foliage, branches, cracks and crevices. Observations were made between 10:00hr to 11:30hr and 15:00hr to 17:00hr. Species that were difficult to recognize in the field were photographed with a digital camera (Nikon P900) and identified later by following standard field guides and reference sources (Tikader (1970, 1977, 1980, 1982, 1987), Koh (1996), Murphy & Murphy (2000), Sebastian & Peter (2009)). Finally, a checklist of the spiders recorded from this region was prepared. The World Spider Catalog (2021) was used to determine nomenclature and taxonomy. All of the specimens were confirmed to a family and generic level, with several being identified to a species level. The checklist excludes spiders that could not be identified.

3. RESULTS

A total of 52 species of spiders were recorded based on the opportunistic observations. Since not all species have been identified up to the species level, the presented checklist (Table 1) is not complete. The family of jumping spiders Salticidae (30%) was the

predominant family of the area followed by Araneidae (26%), Tetragnathidae (9%), Lycosidae (7%), Theridiidae (6%), Thomisidae (6%), Oxyopidae (4%), Sparassidae (4%) and, Uloboridae (4%), Hersiliidae (2%), Agelenidae (2%) respectively (Figure 2).

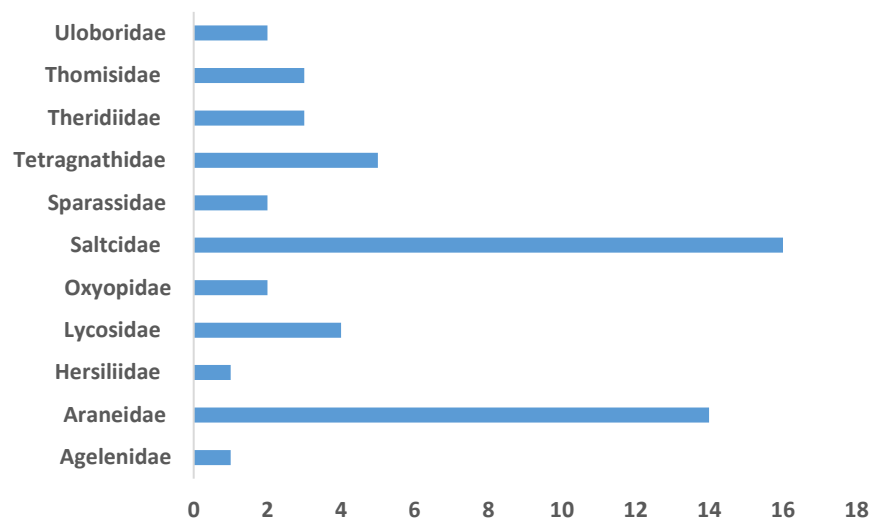


Figure 2 Family wise species richness of Spiders recorded from the study area

Table 1 Spiders recorded from the study area

| No. | Scientific name | Category | Family |
|-----|---|-----------------------------|-------------|
| 1. | <i>Agelena sp.</i> | Funnel-web spiders | Agelenidae |
| 2. | <i>Araneus mitficus</i> (Simon, 1886) | Orb web or tent web spiders | Araneidae |
| 3. | <i>Argiope anasuja</i> (Thorell, 1887) | Orb web or tent web spiders | Araneidae |
| 4. | <i>Argiope pulchella</i> (Thorell, 1881) | Orb web or tent web spiders | Araneidae |
| 5. | <i>Cyclosa sp.</i> | Orb web or tent web spiders | Araneidae |
| 6. | <i>Cyrtophora sp</i> | Orb web or tent web spiders | Araneidae |
| 7. | <i>Eriovixia sp.</i> | Orb web or tent web spiders | Araneidae |
| 8. | <i>Gasteracantha geminata</i> (Fabricius, 1798) | Orb web or tent web spiders | Araneidae |
| 9. | <i>Herennia multipuncta</i> (Doleschall, 1859) | Orb web or tent web spiders | Araneidae |
| 10. | <i>Neoscona mokerjei</i> (Tikader, 1980) | Orb web or tent web spiders | Araneidae |
| 11. | <i>Nephila kuhli</i> (Doleschall, 1859) | Orb web or tent web spiders | Araneidae |
| 12. | <i>Nephila pilipes</i> (Fabricius, 1793) | Orb web or tent web spiders | Araneidae |
| 13. | <i>Parawixia dehaani</i> (Doleschall, 1859) | Orb web or tent web spiders | Araneidae |
| 14. | <i>Thelacantha sp.</i> | Orb web or tent web spiders | Araneidae |
| 15. | <i>Hersilia savignyi</i> (Lucas, 1836) | Two-tailed spiders | Hersiliidae |
| 16. | <i>Hippasa agelenoides</i> (Simon, 1884) | Wolf spiders | Lycosidae |
| 17. | <i>Lycosa sp.</i> | Wolf spiders | Lycosidae |
| 18. | <i>Pardosa birmanica</i> (Simon, 1884) | Wolf spiders | Lycosidae |
| 19. | <i>Pardosa sp.</i> | Wolf spiders | Lycosidae |
| 20. | <i>Oxyope sp.</i> | Lynx spiders | Oxyopidae |
| 21. | <i>Oxyopes shweta</i> (Tikader, 1970) | Lynx spiders | Oxyopidae |

| | | | |
|-----|---|-----------------------------|----------------|
| 22. | <i>Carrhotus sp.</i> | Jumping spiders | Saltcidae |
| 23. | <i>Epeus sp.</i> | Jumping spiders | Saltcidae |
| 24. | <i>Epocilla sp.</i> | Jumping spiders | Saltcidae |
| 25. | <i>Hasarius adansoni</i> (Audouin, 1826) | Jumping spiders | Saltcidae |
| 26. | <i>Hyllus semicupreus</i> (Simon, 1885) | Jumping spiders | Saltcidae |
| 27. | <i>Menemerus bivittatus</i> (Dufour, 1831) | Jumping spiders | Saltcidae |
| 28. | <i>Myrmaplata platyleoides</i> (O. Pickard-Cambridge, 1869) | Jumping spiders | Saltcidae |
| 29. | <i>Myrmarachne sp.</i> | Jumping spiders | Saltcidae |
| 30. | <i>Phintella bifurcata</i> (Prószyński, 1992) | Jumping spiders | Saltcidae |
| 31. | <i>Phintella vitata</i> (C.L. Koch, 1846) | Jumping spiders | Saltcidae |
| 32. | <i>Plexippus paykulli</i> (Audouin, 1826) | Jumping spiders | Saltcidae |
| 33. | <i>Plexippus petersi</i> (Karsch, 1878) | Jumping spiders | Saltcidae |
| 34. | <i>Portia sp.</i> | Jumping spiders | Saltcidae |
| 35. | <i>Siler semiglaucus</i> (Simon, 1901) | Jumping spiders | Saltcidae |
| 36. | <i>Telamonia dimidiata</i> (Simon, 1899) | Jumping spiders | Saltcidae |
| 37. | <i>Thiania bhamoensis</i> (Thorell, 1887) | Jumping spiders | Saltcidae |
| 38. | <i>Heteropoda venatoria</i> (Linnaeus, 1767) | Giant crab spiders | Sparassidae |
| 39. | <i>Olios sp.</i> | Giant crab spiders | Sparassidae |
| 40. | <i>Leucauge decorata</i> (Blackwall, 1864) | Long jawed spiders | Tetragnathidae |
| 41. | <i>Leucauge tessellata</i> (Thorell, 1887) | Long jawed spiders | Tetragnathidae |
| 42. | <i>Opadometa fastigata</i> (Simon, 1877) | Long jawed spiders | Tetragnathidae |
| 43. | <i>Tetragnatha sp.</i> | Long jawed spiders | Tetragnathidae |
| 44. | <i>Tetragnatha viridorufa</i> (Gravely, 1921) | Long jawed spiders | Tetragnathidae |
| 45. | <i>Argyrodes sp.</i> | Comb-footed spiders | Theridiidae |
| 46. | <i>Rhomphaea sp.</i> | Comb-footed spiders | Theridiidae |
| 47. | <i>Theridion sp.</i> | Comb-footed spiders | Theridiidae |
| 48. | <i>Camaricus sp.</i> | Crab spiders | Thomisidae |
| 49. | <i>Oxytate sp.</i> | Crab spiders | Thomisidae |
| 50. | <i>Thomisus sp.</i> | Crab spiders | Thomisidae |
| 51. | <i>Uloborus sp.</i> | Feather-legged lace weavers | Uloboridae |
| 52. | <i>Zosis geniculata</i> (Olivier, 1789). | Feather-legged lace weavers | Uloboridae |

4. CONCLUSION

The preliminary data for the spider checklist for Sulaipat village in Mayurbhanj district, Odisha, is presented in this article. Spiders from Sulaipat have never been documented before. This list is far from comprehensive, rather it just demonstrates the diversity of spider fauna based on observation and provides an initial baseline checklist for the spiders of Sulaipat.

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Ethical approval

The Animal ethical guidelines are followed in the study for species observation & identification.

Conflicts of interest:

The authors declare no conflict of interest.

Data and materials availability

All data associated with this study are present in the paper.

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